

REMARKS

Claims 21-32 and 41-50 are currently pending. Claims 42-49 currently stand withdrawn. By this amendment, Claim 21 has been amended, Claims 42-49 has been canceled, and new Claims 51-62 have been added. Support for the amendment and new claims is found in the specification and claims as filed. Cancellation or amendment of certain claims is not to be construed as a dedication to the public of any of the subject matter of the claims as previously presented, and Applicants reserve the ability to pursue the amended claims as filed, the canceled claims, or similar claims in one or more other applications, e.g., continuation, divisional, or continuation-in-part applications.

Claim Rejection - 35 U.S.C. § 102(b) – Yousaf and Roach

Claims 21-32, 41 and 50 have been rejected under 35 U.S.C. §103(a) as obvious over Yousaf et al. (PNAS, 2001) in view of Roach et al. (U.S. 20030059807). It is well settled that the Examiner “bears the initial burden of presenting a *prima facie* case of unpatentability...” *In re Sullivan*, 498 F.3d 1345 (Fed. Cir. 2007). Until the Examiner has established a *prima facie* case of obviousness, the Applicant need not present arguments or evidence of non-obviousness. To establish a *prima facie* case of obviousness, the Examiner must establish at least three elements. First, the prior art reference (or references when combined) must teach or suggest all of the claim limitations: “All words in a claim must be considered in judging the patentability of that claim against the prior art.” *In re Wilson*, 424 F.2d 1382, 165 U.S.P.Q. 494, 496 (CCPA 1970); *see also* M.P.E.P. § 2143.03. Second, there must be a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091 (Fed. Cir. 1986); *see also* M.P.E.P. § 2143.02. And finally, the Examiner must articulate some reason to modify or combine the cited references that renders the claim obvious. Merely establishing that the claimed elements can be found in the prior art is not sufficient to establish a *prima facie* case of obviousness:

As is clear from cases such as *Adams*, a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) (emphasis added).

Instead, the Court has made clear that the Examiner must establish a reason one of skill in the art would have combined the elements of the prior art, and that such reason must be more than a conclusory statement that it would have been obvious.

Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit. *See In re Kahn*, 441 F.3d 977, 988 (C.A.Fed.2006) (“[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness”). *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1740-1741 (2007).

Claim 21 as amended, from which the remaining rejected claims depend, recites “[a] sensing device for sensing a specific binding between an analyte and a recognition molecule, the sensing device comprising: a patterned, localized, and individually addressable microelectronic sensor, the sensor comprising an individually addressable activation element and a plurality of self-aligned recognition molecules covalently bound to a sensor surface comprising an anchoring layer, wherein the activation element is a thermal activation element configured to adjust a temperature of a part of the anchoring layer and the anchoring layer’s immediate surroundings by heating or cooling or is an electrochemical activation element configured to adjust an oxidation state of a part of the anchoring layer through a locally applied voltage or current, wherein the part of the anchoring layer has an area of less than 1 mm², wherein a volume of part of the anchoring layer’s immediate surroundings, measured as extending into a space accessible by the recognition molecules, is less than 1 mm³, and wherein the sensor is configured to electrochemically detect a specific binding between the recognition molecules and an analyte.”

Yousaf teaches a receptor-ligand interaction for cell/protein adhesion to a substrate, and the use of Diels-Alder reactions to detect the presence of a compound therewith. Yousaf includes no teaching as to individual addressability. While Roach teaches individual addressability, it is in conjunction with a different sensing method than that of Yousaf. The sensing method used by Roach is employs a difference in temperature, not an electrochemical method – there is no coupling chemistry for adhesion and reaction, and no Diels-Alder like reactions. Roach measures a difference in temperature when a compound is bound to the substrate (a yes/no measurement). One of skill in the art would not have a reasonable expectation of success in taking the sensing method of Roach for an individual addressable sensor based on temperature measurement, and

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employing it in an advanced individual addressable sensor making multidetection possible using specific coupling chemistry to initiate compound specific reactions, as in Applicants' device as claimed. The subject matter of a claim is not obvious over the prior art if there is no reasonable expectation of success. *In re Rinehart*, 531 F.2d 1048, (CCPA 1976).

Applicants respectfully submit that the Office Action has impermissibly used hindsight derived from the teachings in the present application, and not the teachings of the prior art, to reject the pending claims. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999) (holding the Board impermissibly used hindsight in determining obviousness). In *Dembiczak*, the Federal Circuit reiterated that a determination of obviousness cannot simply rely on the inventor's disclosure as a "blueprint" without evidence of a suggestion, teaching or motivation in the prior art. *Dembiczak*, 175 F.3d 994, 999. Also, according to M.P.E.P. Section 706.02(j), "[t]he teaching and suggestion to make the claimed combination and the reasonable expectation for success must both be found in the prior art and not based on applicant's disclosure." (emphasis added). See also, M.P.E.P., Sect. 2145, part X.A and M.P.E.P. § 2143 "Determination of obviousness cannot be based on the hindsight combination of components selectively culled from the prior art to fit the parameters of the patented invention." *ATD Corp. v. Lydall, Inc.*, 159 F.3d 534, 546 (Fed. Cir. 1998).

Accordingly, and for at least these reasons, Applicants respectfully submit that the pending claims as amended are not obvious under 35 U.S.C. § 103(a) and respectfully request that the rejection be withdrawn.

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Conclusion

Should the Examiner have any concerns that might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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